

FIG. 1

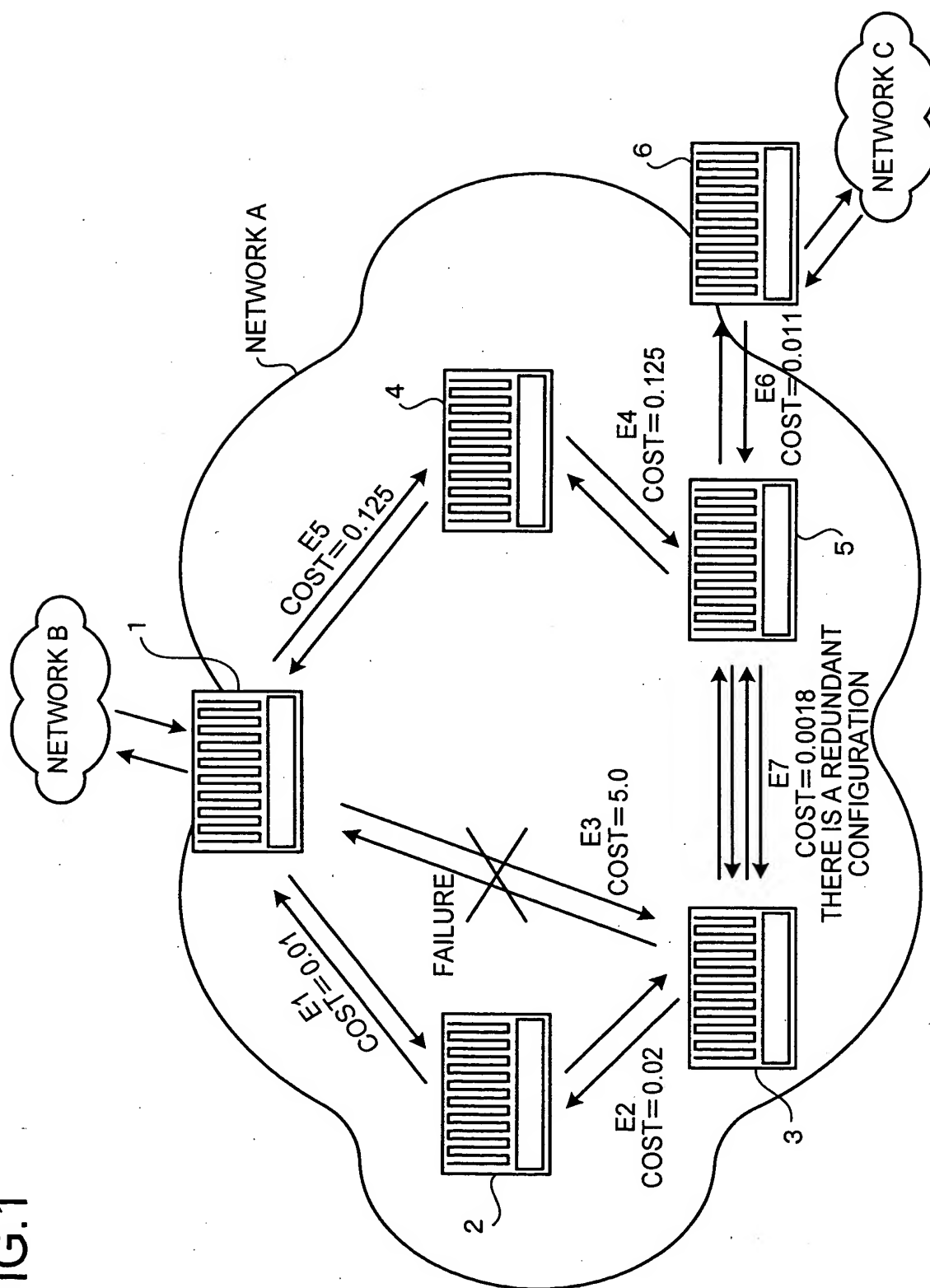


FIG.2

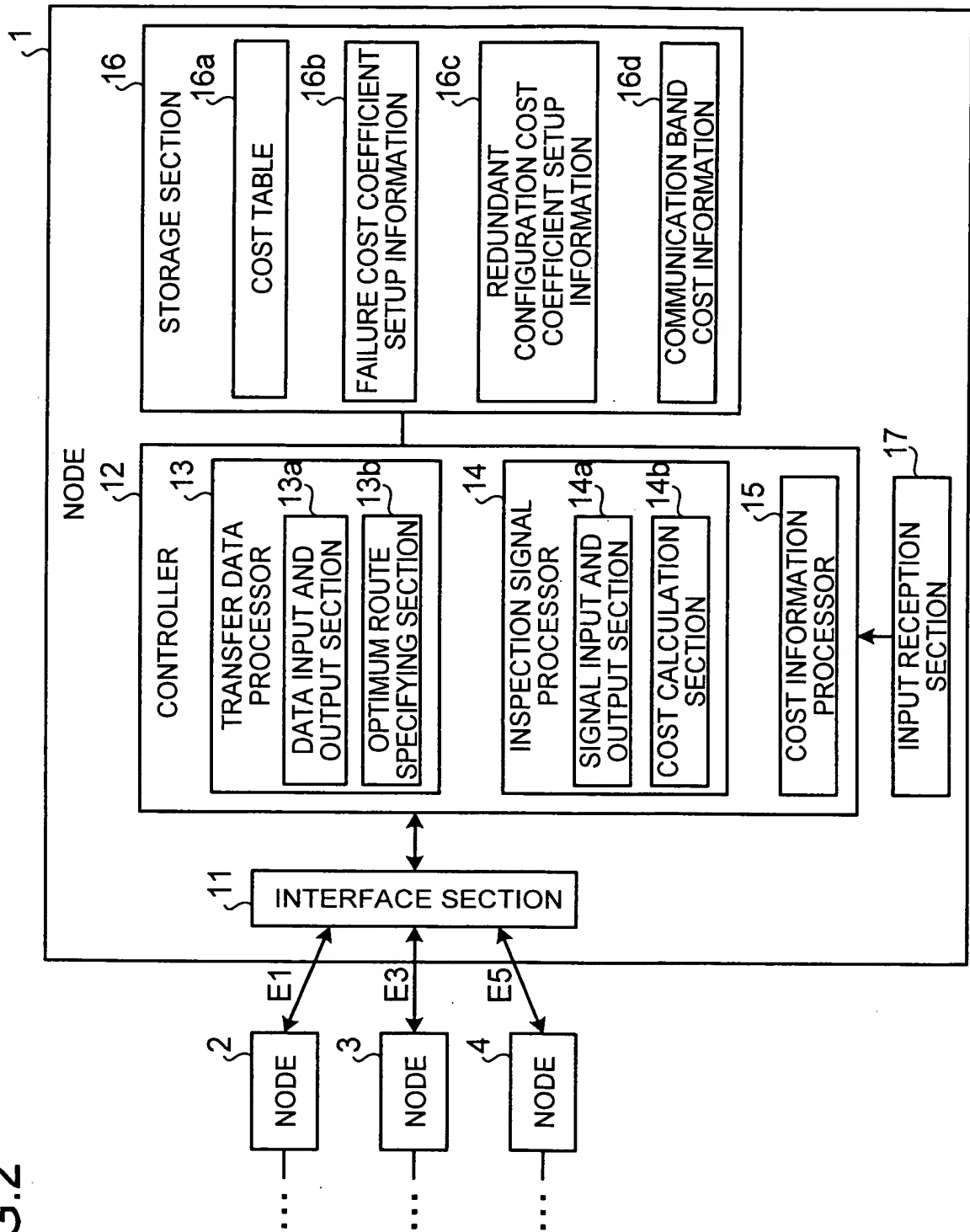


FIG.3A

| COMMUNI-<br>CATION LINE | BAND (bps) | USAGE (bps) | UNUSED (bps) | COST    | NOTE  |
|-------------------------|------------|-------------|--------------|---------|---|
| E1                      | 100M       | 0           | 100M         | 0.01    | NO FAILURE  |
| E2                      | 100M       | 0           | 100M         | 0.01    | NO FAILURE  |
| E3                      | 10M        | 0           | 10M          | 0.1     | NO FAILURE  |
| E4                      | 10M        | 0           | 10M          | 0.1     | NO FAILURE  |
| E5                      | 10M        | 0           | 10M          | 0.1     | NO FAILURE  |
| E6                      | 100M       | 0           | 100M         | 0.01    | NO FAILURE  |
| E7                      | 600M       | 0           | 600M         | 0.00017 | REDUNDANT<br>CONFIGURATION<br>(1+1-APS)<br>NO FAILURE |

FIG.3B

| COMMUNI-<br>CATION LINE | BAND (bps) | USAGE (bps) | UNUSED (bps) | COST   | NOTE  |
|-------------------------|------------|-------------|--------------|--------|---|
| E1                      | 100M       | 0           | 100M         | 0.01   | NO FAILURE  |
| E2                      | 100M       | 50M         | 50M          | 0.02   | NO FAILURE  |
| E3                      | 10M        | 5M          | 5M           | 0.2    | NO FAILURE  |
| E4                      | 10M        | 2M          | 8M           | 0.125  | NO FAILURE  |
| E5                      | 10M        | 2M          | 8M           | 0.125  | NO FAILURE  |
| E6                      | 100M       | 10M         | 90M          | 0.011  | NO FAILURE  |
| E7                      | 600M       | 50M         | 550M         | 0.0018 | REDUNDANT<br>CONFIGURATION<br>(1+1-APS)<br>NO FAILURE |

FIG.3C

| COMMUNI-<br>CATION LINE | BAND (bps) | USAGE (bps) | UNUSED (bps) | COST  | NOTE   |
|-------------------------|------------|-------------|--------------|-------|--|
| E1                      | 100M       | 0           | 100M         | 0.01  | NO FAILURE   |
| E2                      | 100M       | 50M         | 50M          | 0.02  | NO FAILURE   |
| E3                      | 10M        | 5M          | 5M           | 5.0   | FAILURE (LSC)  |
| E4                      | 10M        | 2M          | 8M           | 0.125 | NO FAILURE   |
| E5                      | 10M        | 2M          | 8M           | 0.125 | NO FAILURE   |
| E6                      | 100M       | 10M         | 90M          | 0.011 | NO FAILURE   |
| E7                      | 600M       | 50M         | 550M         | 0.009 | REDUNDANT<br>CONFIGURATION<br>(1+1-APS)<br>FAILURE (LOS) |

FIG.4A

| FAILURE DETAILS     | NAME OF ALARM                                 | FAILURE COST COEFFICIENT |
|---------------------|---|--------------------------|
| LOSS OF SIGNAL      | LOS(Loss Of Signal)<br>LOC(Loss Of Carrier)   | 50                       |
| LOSS OF SYNCHRONISM | LSC(Loss Of Synchronize)                      | 25                       |
| LINE DISTURBANCE    | Pause Frame TRANSMISSION<br>PAIS TRANSMISSION | 10                       |

FIG.4B

| REDUNDANT CONFIGURATION                       | REDUNDANT COST COEFFICIENT |
|---|----------------------------|
| BLSR(Bidirectional Line Switched Rings)       | 50                         |
| UPSR(Unidirectional Protection Switched Ring) | 30                         |
| 1+1-APS(Automatic Protection Switching)       | 10                         |

FIG.5

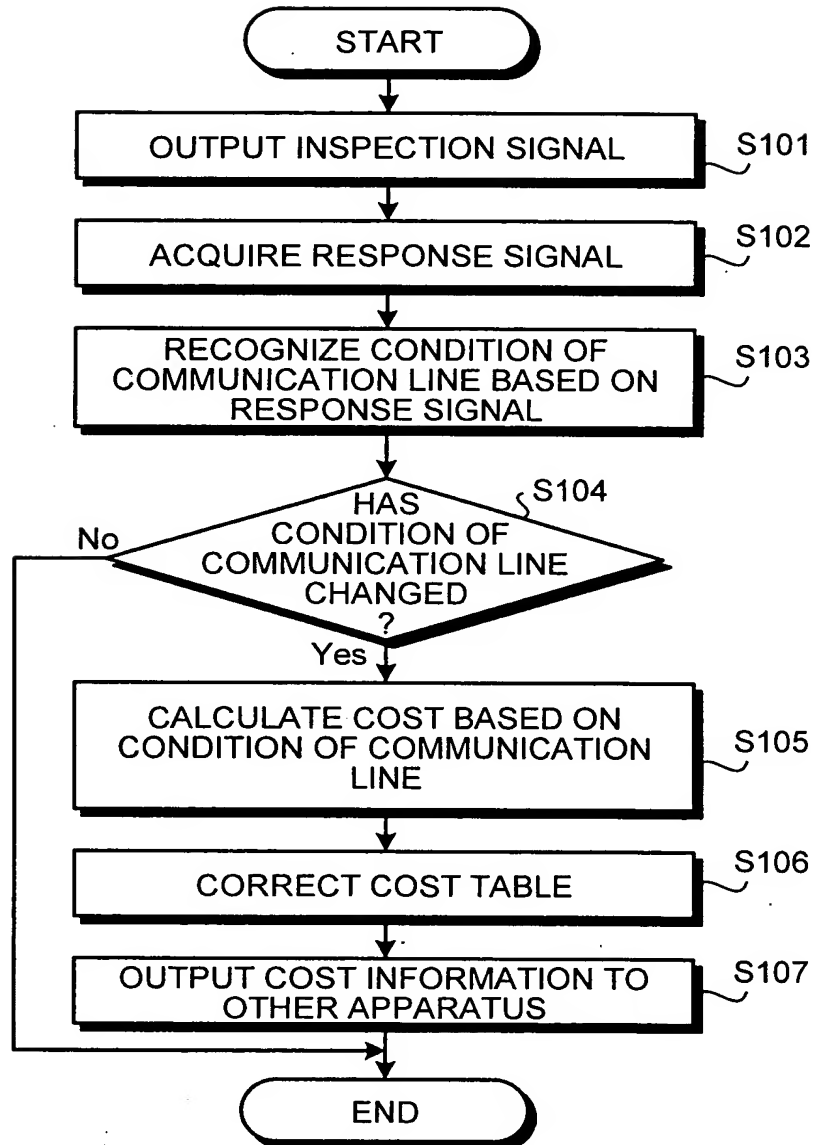


FIG.6

